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ABSTRACT

Designed for use by elementary school teachers, this discussion paper discusses the use of the word processor in the teaching of writing. The paper examines both the positive and negative aspects of computer use. After comparing the writing process with the problem solving process, the newsletter provides articles relating teachers' experiences with the word processor and various computer programs. (HOD)

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Writing Teaching and the Word Processor

A Computer Discussion Paper

Edited by R. D. Walshe

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Writing Teaching and the Word Processor

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Two Waves of Change Converge in 1980s!

Of the many changes buffeting Australian classrooms in the 1980s, two stand out:

1. the new process-centred model of writing teaching;
2. the microcomputer, with word-processor function.

Each is remarkable: *process writing* because it replaces centuries-old 'one-shot draft writing' with a valid model of how-writers-really-write; the *microcomputer* because it is an amazing, continually improving tool with great potential for stimulating children to lift present levels of self-expression, communication, and reasoning.

More remarkable still is the fact that these two waves of change, rising separately, have converged — on the screen of the microcomputer! That is, they converge when the microcomputer is used as a 'word processor' to teach the process-centred model of writing.

The integration of 'process writing' and 'word processing' is being pioneered by a small but growing band of teachers, and this discussion paper has gathered some of their insights.

'Word processors will draw far more people into the act of writing. In a few years, professional men and women in every field and at every level will be writing on word processors to conduct their daily business. I hope . . . they will begin to see them as tools that they can use like any other tools — without fear, and maybe even with pleasure.' — William Zinsser, *Writing with a Word Processor* (Harper & Row, 1983), p. 26.

Primary English Teaching Association PETA

'Of all possible applications for computers in primary schools, Word Processing has become the most popular.' Toni Downes, President, NSW Computer Education Group

A Positive Attitude

A computer is only a tool. Some tool, indeed! Yet one feels obliged to say 'only a tool' in a bid to keep this incredible machine in its place, as servant not master.

At best our learners will 'drive the computer', using it for original writing, calculating and problem-solving; but less virtuously the computer can 'drive the learners', demanding programmed responses from them.

Everything depends on HOW a tool is used. A computer, like other tools, can be used for good or ill— or trivialised or left unused in a storeroom.

1. Avoidance is Unthinkable. Computers are entering schools and homes in increasing numbers. It is folly to avoid them and a pity to neglect their potential for teaching writing. Let's heed the journalists' experience:

> 'There is still an instinctive reaction to even a mention of the word *computer* by many people aged over 25. But having witnessed the computer revolution in the print industry and the way in which apprehension has given way to casual acceptance I have seen how rapidly the barriers of fear of the unknown can fall.'—Maximilian Walsh, *S.M.H.*, 17/5/84.

2. Word Processing Is the Computer's Most Important Function. While the computer has many possible functions in primary and secondary schools, none can contribute more, educationally, than its word processor function — *provided the word processor is used by children for original writing, across the curriculum.* This can be confidently asserted because of the eminence of writing in many subjects as the most consistently deep kind of thinking/learning children do. (See page 2: writing as a problem-solving process.)

3. The Word Processor Is a Stimulus to Write More. The unanimous testimony of teachers who are using the word processor (W/P) is that it stimulates children to write more and to want to write often. This itself is good — insofar as we 'learn to write by writing' — but there remains the need for a teacher who can bring good teaching to bear and so help to lift the quality of the writing.

4. Make Best Use of This Scarce Resource. There are at present many obstacles to effective classroom use of computers: few machines, few computer-literate teachers, few experiences in using the W/P for writing. If the W/P is the computer's most important single function, how much 'computer time' will be allotted to writing and how much to other functions? Every school needs a policy to cope with the obstacles, every teacher a program to make the best use of this presently scarce resource in his or her classroom . . . *More and better writing is the objective — how can the W/P contribute?*

See 'A Negative Side?', page 2.

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What NOT to Overlook When Using the W/P to Teach Writing

If writing is not going well in a classroom, neither the presence nor the absence of a word processor will be the cause. Writing can be taught well or poorly with or without this new technology. As a tool, the W/P stands ready to assist the good teacher of writing.

Here is a warning from a leading pioneer of computer science:

'The introduction of the computer into any problem area, be it medicine, education, or whatever, usually creates the impression that grievous deficiencies are being corrected, that something is being done. But often its principal effect is to push problems even further into obscurity — to avoid confrontation with the need for fundamentally critical thinking.' — Joseph Weizenbaum, Professor of Computer Science, Massachusetts Inst. of Technology, in *S.M.H.*, 21/4/84.

So, if the class's writing is not going well, let's look beyond the W/P and think critically about the many other factors in the *writing situation*:

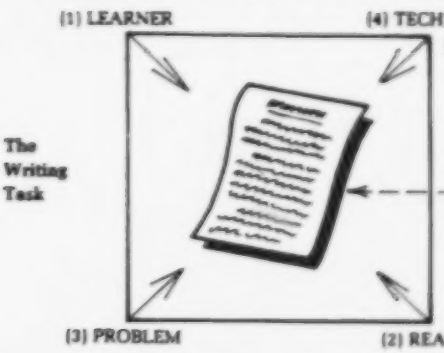
Q.: Is the classroom context supportive of writing?
Teacher: who values and promotes writing.
Time: to write daily — an emphatic priority.
Reading: class library/daily reading aloud/pupil-authored books.
Pupils: who make helpful comments on one another's writing.

Q.: Is the teacher promoting 'process writing' — a process which, *very broadly*, moves through these stages?...

Experience › **Pre-writing** › **Inspiration** › **Drafting** › **Revision** › **Publication** › **Response**

Q.: Are the 'stages' perhaps being treated mechanically, whereas in real writing each writer's process is individual — needing more or less pre-writing preparation; drafting quickly or slowly; overlapping revision with drafting or leaving all revision until the draft is finished, and so on?

Q.: More generally, is one or more aspect of the four key elements of a writing task in need of attention?



(1) LEARNER: Reasons for writing? Some self-chosen topics?

(2) READERS: How real? Valued by writer?

(3) PROBLEM: Is research needed? Note-making?

(4) TECHNIQUE: How does teacher help child (e.g. conferences) with topic choice ... data gathering ... text structure ... getting started ... drafting ... revising ... publishing...?

Q.: What if 'process writing' is confined to writing about personal experiences?

A.: Writing can greatly help learning in all subject areas because it is a 'deeper kind of thinking', a particularly careful form of the problem-solving process. In any subject, whatever is to be learnt is a PROBLEM which writing can help to solve.

The two processes when compared in columns prove to be identical in their essentials (see below); indeed, to 'add up' the columns is to discover that writing/problem-solving is the best kind of LEARNING PROCESS:

WRITING PROCESS	Experience	Pre-writing	Inspiration	Drafting	Revision	Publication	Response
PROBLEM-SOLVING PROCESS	Problem	Investigation	Illumination	Formulation	Checking	Report	Response
LEARNING PROCESS	**Problem**	**Investigation**	**Insight**	**Drafting**	**Polishing**	**Announcement**	**Reaction**

Cont. from 'A Positive Attitude', page 1.

A Negative Side?

New technology always comes with a price tag, not only in dollars and cents, but also in imperative demands for change — bringing a new lifestyle, new constraints, new temptations (think of cars, TV, fast food...) Unmixed blessings are rare! So while adopting a positive attitude, we need also to be sensibly alert to negative possibilities.

- BEWARE of computer buffs, salespersons, publications — insofar as they speak too glibly ('... the future is not for one computer in every home, but one computer in every room.').
- BEWARE the technology-will-save-us fallacy: computers are one potentially significant element among many in the complex educational process; and the W/P is only one element in the complex craft of writing.
- BEWARE of equating use of a W/P with good teaching of writing: the W/P will be used well only in the classroom of a good teacher of writing. (Let's not forget that writing is at present being taught very well by some teachers *without* a W/P.)

LET'S ALL BE DECENTLY SCEPTICAL PIONEER OBSERVERS. For example, are the children really using this expensive equipment to write better than they could with a 50c biro? Are they revising deeply or only cosmetically? What is the effect of this 'high tech' on their willingness and ability to compose also with pen-and-paper ('How can I write if I haven't got a microcomputer?')?

However much use is made of a W/P in the classroom and at home, every child surely needs as before to learn to compose fluently in handwriting. (But didn't hand-calculators retard the rote learning of tables? And who returns cheerfully to the scrubbing-board when the washing machine breaks down?)

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'How I Discovered the Word Processor Helps in Teaching Writing'

Principal of Bald Face P.S., Norman Ross, says: 'We start our computer program in Kindergarten with children doing a cloze passage and multiple-choice comprehension on Friday afternoons. In Years 1-2 a computer is in almost constant rotational use, with the children handling selected drill-and-practice programs. Later years see a variety of uses. For example, Jennifer Lee here describes the work she is doing . . .'

Walk into our classroom at any time and it will seem similar to any other Year 6 classroom in Australia, with children busily engaged in a variety of activities. A closer look will reveal some children absorbed in an activity which is not yet the norm in many classrooms . . . using the class computers to assist them with various lessons and especially with Written Expression.

Bald Face School receives its improbable name from a large, bare face of rock overlooking the nearby Georges River, to Sydney's south. There are nine classes from K to 6. The computer era began here at the end of November, 1982, when our first computer, promptly named Sherlock, arrived. During the preceding months our Principal, Norm Ross, had attended computer courses, visited schools which already had computers in use, and made various inquiries about the different types of computers available.

Eventually we decided that the MicroBee, an Australian-made computer, was the best for our purposes. The first arrived three weeks before the end of Third Term, 1982. The children were ecstatic, the teachers apprehensive. Most of us had never even touched the keyboard of a computer. I am neither mechanically nor mathematically inclined and feared that both skills might be needed for competent computer use.

I needn't have worried. I took the computer home for the weekend and, using the handbook, soon learnt the simple commands which enabled me to run the programs we had purchased for classroom use. Later, staff training courses run by our Principal, proved invaluable.

As the computer had been donated by the departing Year 6 children, we allowed them exclusive use in what remained of Term. What we learnt in those weeks helped us to formulate our policy for 1983.

First it was obvious that some kind of typing course was needed because the greater part of the computer time was being spent trying to find each letter on the keyboard. We noticed that one child who had had instruction in typing from an older sister finished each program in half the time it took the others. Our first priority, then, would be to introduce a touch typing course. Little did we realise then just how important this decision was to prove.

The next problem was that of trying to teach while this interesting newcomer was in operation. Every eye in the class turned automatically towards the monitor regardless of what lesson was in progress. I came to feel there was not room in the classroom for both of us. One would have to go . . . and it wasn't going to be me! In desperation, I rearranged the furniture so that the computer was rendered invisible to the class behind a makeshift screen of bookshelves. It was also strategically placed, near my table, so that I could supervise its use and give help whilst still retaining visual control over the rest of the class. Problem solved!

During the Christmas holidays I took the computer home once more and worked my way through every program we had purchased, noting the content of each and recording any difficulties I encountered. This was to prove most valuable, and as each program arrives these days it is similarly evaluated. The results have been printed in book form and are available to each member of staff. After two weeks I had completed the computer touch typing course which I intended to give the children, reaching a speed of 30 words per minute with an accuracy rating of 100%.

At the beginning of the new year we began in earnest. My class was a composite 5th/6th. We started with the touch typing course and could see the benefits after only a few weeks when we broke off to run some maths and language programs. No longer did the fingers wander all over the keyboard before striking the appropriate key. At this stage each child was getting about half an hour a week on the computer. The order of its use was determined by seating position in class and as each child completed a program the next child would automatically take over, with a minimum of fuss.

Sherlock had become an accepted part of our classroom. In those early days, quite a lot of teacher help was needed but soon the children became familiar with the operation of the machine and self-sufficient in its use. When difficulties were encountered, nearby children could usually help if I happened to be busy.

For the next few months we continued with the typing course but interrupted this every three or four weeks to use some of our subject programs. We even ventured into simple programming. We had settled into a comfortable, enjoyable routine.

Then one July day the computer was fitted with a small chip which turned it into a Word Processor at our command and immediately we saw enormous implications where Written Expression was concerned, for the word processor is the perfect vehicle for the conference approach to writing. Typing ability suddenly became very important if the children were to concentrate on what they were writing instead of on the keyboard.

Continued on page 7, see Bald Face School.

'I rearranged the furniture so the computers were rendered invisible to the class behind a screen of bookshelves.'

'The turning point in my thinking came when I realised that it was a gross error to have the computer 'centre-stage'. The computer is a tool and like any tool its proper place is in the wings. The most important person in the classroom is the teacher and he is there because the children are important; the computer is and should be one more weapon in his armoury, like blackboards, books and pens . . . It was my job to stimulate the imagination of my pupils.' — Derrick Daines, in *Exploring English with Microcomputers*, ed. Daniel Chandler (N.A.T.E., 1983)

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Word Processors at Denistone East Public School

Principal of Denistone East, Barry Manefield, says: 'We see Years 1-2-3 as a 'computer comfort' stage when children get to know and to 'drive' small micros, using programs of the drill-and-practice kind. Then in Year 4 they learn keyboard skills in preparation for the relatively intensive work described here by Resource Teacher, Helen Richards . . .'

The advent of computers in Primary schools has led many teachers to see the great possibilities of their word processing capabilities when linked into children's writing programs. Certainly it seems an ideal way to allow children to draft a story, print its first form, discuss and redraft, then reprint a polished final copy — or copies, as many as you wish.

In our school over the last eighteen months, we have trained, or are training, all Year 5 children to do just this. It has been a learning experience for both children and teachers.

Before outlining our methods, I will make some points that should be considered before embracing word processing as the 'sunrise industry' of creative writing . . .

- The word processor is but a tool in the writing and language process — attractive, effective and motivational, but still just a tool. Its use should not displace our nurturing of a child's interest in using writing as an expensive communicator.
- Word processing needs thorough training before effective use is possible. Children need keyboard skills and automatic confidence in the editing process to free them to write as they wish. This takes time and planning if all children are to benefit.
- If all children are writing this way, the teacher has to rethink the monitoring of stories. 'Please Miss Jones, I've written a whole chapter, but it's on disk — I didn't have time to print it!'
- Proofreading as a skill needs to be given a higher profile. Long neglected by Primary teachers, it is akin to self-checking in Maths — we know it's worthwhile, but it's often left out in the rush. Peer conferencing is ideally suited to this step.
- There is a need to cater for individual differences. While some children are able to write 'off the top of their heads', others require written prompts — notes, sentence starters, useful words, and in the early stages particularly, some find it better to have much of their first copy written down.
- Because it is fairly new and largely untested, there is no definitive right (or wrong) way to go about using a word processing plan. This of course has as many advantages as disadvantages but carries with it a fair responsibility to see that what we do really is in the best long-term interests of children and their writing.

At Denistone East we decided that Year 5 would be the best place to utilise word processing across a grade, and we planned on the basis of integrating our teaching of the necessary skills with the writing program. The methods we used this year were modified from those of 1983.

What follows is a record of the teaching of the use of word processing, but does not extend to detailed classroom management, which is for individual schools and teachers to decide. From our experience, I believe that the teaching steps would be likely to vary little from school to school or from one brand of computer to another. We use Microbee computers, which are cassette loaded and have an in-built word-processor, but this year we have incorporated a network system so that children can save and load from disk (in fact they can use either system), but the teaching and learning steps remain.

Firstly we spent considerable time practising keyboard skills, using three different programs for variety. Though there are arguments to the contrary, we felt it was unrealistic to teach touch typing to 60 children without heavy commitments of time, so evolved our own standards of 'keyboard skills', namely:

1. Correct seating and posture.
2. Both hands open over the keyboard.
3. Right hand operates R.H. keys, left hand L.H. keys.
4. Thumbs for the space bar.
5. Little finger on Return (or home) key if possible.

This keyboard practice occupied almost a term last year, but a little less time this year.

Without expecting uniform efficiency in typing we moved on to teaching the editing functions of the word processor. The children are shown how to move the cursor around their 'file' (which is a word I use from the start) in a non-destructive fashion, to position it for changes, and to make the necessary changes — alterations, insertions and deletions. To do this, we made up a 'file' of sentence correction type activities on which they could practise (*WBEXER*, or Word Bee exercises). As both the on-screen 'help' page and the manual had more functions than were needed at first, we produced a simplified and clearly set-out version on cardboard which could be placed beside the computer for handy reference.

Before using *WBEXER*, children were instructed on 'How to load a file'. Several lessons were given over to practising this exercise, the final parts of which incorporate a certain amount of proofreading. Here children were encouraged to move the cursor down, line by line, to check each one. Working in pairs at this stage seems a good idea, as long as keyboard time is equally shared.

As children felt they were ready, they moved on to the second prepared file (*WBTEST* or Word Bee Test). This is much shorter, and includes a test of all the functions set out on their cardboard sheet. Again in pairs, but this time without assistance, the children had to load this file, proofread and correct it and then follow set instructions for printing it. If their printout was 100%, they were given a 'Word Bee Efficiency Certificate'. If not, they could simply try again. No one took more than three tries to gain the award.

At this stage, each child was told to prepare a story (on paper) ready to use as their own first file. This story was used to teach a 'setting out' procedure which would make the printed result look right — an underlined heading, space for later print instructions, a space between paragraphs, etc. This was set out on a wall chart 'Setting Out Your File', for reference.

By now children were at various learning stages, and the quicker ones were ready to go on. To save the teacher's sanity, we decided to teach the saving and printing of files to everybody — ready or not. Again with the aid of wall charts, 'Saving Your File' and 'Printing Your File', we took children through these

Continued, page 5.

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Word Processors at Denistone East Public School cont.

Cont. from page 4.

steps. Here we were making full use of peer tutors, as those who picked up the steps quickly helped those who didn't.

Up until now, I have been setting out the steps we took to train children to use the word processor, but from here on the pattern becomes more complex, as children begin to merge their newly acquired skills with their developing writing skills, and here of course it is up to the individual teacher to decide how to proceed. We decided on a pattern whereby each child wrote a story and printed it 'warts and all' for peer and teacher conferencing. They could then revise it on the computer and make a second print, of which they make two copies.

There are of course many other ways their word-processing skills can be organised, but to be a worthwhile utility for Primary school children, it needs to be thoroughly taught in a developing way and widely accessible to all children.

Without any research to back up our experiences I would like to make a few observations.

- Even given access to a number of computers (we are using ten in a group now) it will take at least two full terms before most of a class can use a word processor to further their creative writing. Of course they can produce a printout much sooner, but to be really effective, the word processor must be being used automatically so as not to impede the development of ideas.
- It is probably better to plan for development over two years — Years 5 and 6 — so that most benefit can be derived. Some of our Year 5 children of last year are only now seeing the real benefit of what they learned twelve months ago.
- Because of the future implications of what they are learning, I think the expenditure of extra time on word processing is justified. I would encourage any child who wished to do so to produce any of their assignments on Word Bee.
- Children like using this method — particularly poor handwriters. While some embrace it more enthusiastically than others, we have had no child express any dislike of it. Generally they quickly find it adds a dimension to their writing which has an immediate attraction — they find the repetitive nature of a held-down key fascinating. Rows of question marks or exclamation marks add a highlight of their own (though of course this requires monitoring too!).
- The arrival of their printout is always a high point. The rattle of the printer remains highly motivational. 'That's MY story' is an oft repeated phrase. 'May I have three, so I can take one home?'
- Once familiar with the system, children do seem to be writing more than they do on paper. Even if this begins merely as an exercise to press a key to count the words so that Jane Smith can see if she has written more than Bill Brown, it develops from there to more mature writing.

Maybe the final word should come from a Year 6 boy struggling at the bottom of a second stream class (and there are many interpretations to be put on this): 'It isn't like writing, it just finishes right'.

Report from a Denistone East Classroom

Bronwen Thompson, a teacher at Denistone East Public School, presents a view from the classroom of how she integrated 'process writing' and the 'word processor' in a single exciting year. She started out, she says, as a 'computer illiterate' but determined to make the computer serve the interests of writing. . .

In 1983 I taught the 'A' stream of Year 5 in a middle class Sydney suburban school. At the end of the previous year, Microbee computers had been purchased by the P. & C. Association with some assistance from an Education Department grant. 'Computer fever' was in the air. The Principal and Resource Teacher knew a little about computers; some parents knew much more; the children were excited but had little knowledge, and the classroom teachers, most apprehensive, had no knowledge at all.

During the entire year, computer use in the classroom was completely experimental, a learning experience for all. After much discussion, it was decided that certain grades would concentrate on a particular aspect of computer usage. Year 5 were to use the Word Processing aspect with Written Expression. My class also began in this year to use the 'process-conference approach' to writing for the very first time. Imagine! New class, new writing method, new computers — a very exciting New Year package indeed! Let me explain first my use of process-conference writing; then how we introduced the computer; and finally my evaluation of the year's achievements.

1. Process-Conference Writing

In *Every Child Can Write* (P.E.T.A.), Bob Walshe calls for enjoyment of writing and a striving for quality. Keeping these goals in mind, I see the writing in my classroom proceeding like this . . .

1. Find a topic, talk, act, perhaps research
2. Write a first draft, using invented spelling.
3. Revise: meaning, sequence, correct conventions, etc.
4. Show to a friend(s) and think about the response.
5. Carry out extra revising if necessary.
6. Conference with teacher, who guides improvement.
7. Publish (e.g. as a 'book') after final revision.
8. Obtain readers' responses — and value them.
9. 'What have I learned? What shall I write next?'

It seems a long process but the children found they could follow this pattern with little fuss. Not all stories go beyond the draft stage, only those intended for publication. Children who write with few errors can publish a piece of work weekly, but those who have difficulties or those who write long stories may need two or three weeks to finish a publication. All are encouraged to illustrate their work.

I divided the class into three groups which rotated their work over three days — written expression, computer, and reading activities. With 10 children in the Resource Room learning computer skills and 10 working quietly on reading, I could conference the remaining 10 as necessary.

The process-conference approach encourages individual topic-choice. Some children at first found this difficult, so I held a weekly group 'talking' session to pool ideas. As confidence grew, the children voluntarily dropped out. Sometimes I offered a special topic or an optional social studies or language theme.

When I evaluated individual progress for the year, I felt that enormous progress had been made with our process-writing — in quality of English and in discovering that writing can be a worthwhile and enjoyable experience.

Continued on page 6.

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2. Computer Skills for Written Expression

I must thank the Resource Teacher and our Principal for coping so well with a teacher who knew absolutely nothing about computers. They both insisted that all I needed to know was how to type LOAD and RUN and to press the RETURN key. Of course I thought they were MAD, but with hindsight, they were right. My role became that of the classroom organiser, recorder of data, and instigator of the next 'step'. After the resource teacher had taught a skill to the class, we practised and used the skill on our classroom computer. I would then discuss problems and achievements with her, in order to come up with the next step. Theoretically, we were holding a 'formative evaluation' after the 'situational analysis' and preparing the 'new objectives'(!).

During first term, until Easter, each child had two half-hour typing lessons per week in school time. This made them familiar with the keyboard and increased their finger skills. Some chose to attend optional typing lessons before or after school as well. During the last weeks of term, we wrote our first stories on the computer and had them printed out.

In second term, we kept one typing lesson per week and introduced the Wordbee program in our second computer time. For organisational purposes, I now had one computer session in the reading groups and three other computer sessions at various times during the week. One computer was permanently based in our room.

The Wordbee Program, *WBEXA*, introduced the children to the word processing capabilities of the Microbee computer: how to correct mistakes, insert new words, delete words (even whole sentences), improve paragraphing, and correct spelling and punctuation — all without having to retype the story. A great invention!

Children's revising skills develop gradually, and a parent 'helper' in the room is an advantage for casting an eye over the writing.

When the children had a working knowledge of which key to press for which operation, I gave each a copy of Derek's first story. They marked the mistakes they could find, counted them and put the total at the bottom. (The number varied from three to eighteen!) Two lessons were learned here: that spelling and punctuation mistakes were often typing mistakes which would improve with practice; and that supervision of corrections is vital.

"Derek's Book Review"

> This is owing to be my best book review yet! It will help fight M.S. I am joinin in myself. The national taret is 1000 000 dollars.sSo far, only 6 children have posted their entries in.but we are expecting many more. Here comes another load. This is really a read-a-thon andpeople are sponsered. They go around to the neighbors and collect peoples names and addresses. Then, they sponser a certain amount. after all the letters are collected all the money is counted and the person with the most money wins the grand prize. A P&O cruise to the Bahamas!

The next step was to learn how to store the typed work on cassette tape so that in the following lesson the story could be finished or corrected. This is 'Saving the File'. The resource teacher explained the procedure in a whole class lesson, before each group practised it. If instructions are followed exactly, all ends well, but if just one step is not correct, it is possible to lose a whole story. The use of volunteer mothers in the resource room was particularly helpful at this point, in checking with the child to see that all steps had been carried out carefully.

'Word processing needs thorough training before effective use is possible. Children need keyboard skills and automatic confidence in the editing process to free them to write as they wish.'

By the end of second term, most children were able to type in a short story, store the file, reload the computer, and finish the story in another lesson. My problem now was that the 'outside response' was being done in the computer room and I could not be in two places at once. Therefore, in third term we aimed to write our stories in one of two ways.

Those children who wished to type their stories straight onto the computer without a handwritten draft first, were free to do so. They stored their file and made a printout to use for the outside response and conferencing, revising and editing. They then reloaded the story from the cassette tape, made all corrections, without having to retype the whole thing, and made two printouts — one for themselves and one for the teacher's class Writing File.

Other children wrote their first draft by hand and only used the computer to publish the final copy. Parents were most helpful here in assisting the child to look for typing errors before printing. During this stage, class typing lessons were abandoned, so that more time could be devoted to using their acquired skills, but many decided to keep on with the optional lessons in their own time.

By the end of the year, great excitement reigned each time a story came 'off the press'. The children were encouraged to vary their writing from stories to articles, book reviews, plays, programs, poems and news reports, to name but a few. Some decided to join their ideas into chapters for a book. I am more knowledgeable about Star Wars and Ewoks than I ever imagined I would be!

3. Evaluation

To many who read this article, it will seem a far cry from the days of one composition lesson a week with red correction marks and a score out of 10. Marks were not given for this process writing. Encouraging comments and self-appraisal were far more beneficial. By keeping copies of their efforts over the year, the most important evaluation came when the children were able to show me where they had improved, and to talk about their aims for greater improvement next year.

It must be remembered that this was an 'A' stream class, who were able to locate mistakes and correct problems rather easily. This year I am working with a 'parallel' Year 5 and will be comparing the progress between each group. At least I know where I am going this year, my groups are ready, mothers have been trained as helpers, and the organisation of time is arranged well in advance. With this preparation and knowledge of forthcoming pitfalls, I envisage far more economy of time and effort.

As a learning experience for myself, a raw beginner in the use of computers, I rejoiced one wet Friday afternoon when sport had to be cancelled, and I asked the class if there was anything in particular that they would like to do. All bar one boy wanted to finish stories on the computer, and he preferred to write a computer program in his next saga of 'Dragons and Dungeons'. Whether the writing process was improved with the use of the computer, or the computer skills were improved with the aid of process writing, I hesitate in answering, but I do know that these children now enjoy writing and are writing to the best of their ability.

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Word Processors and Learning Disabled

Vivienne Church, who is a Regional Consultant (Computer/Communications) with the N.S.W. Education Department has researched the language needs of 'learning disabled' students and sees a valuable role for the W/P.

The inability to read is often the greatest reason for a negative self-image with L.D. students. Many do not realise the relationship between the spoken and the written word. Harris (1983:15) says,

> 'So much of what they do in reading is meaningless . . . [The] computer will assist the teacher in generating with the student typed forms of their own stories and anecdotes to be read by them to themselves and their peers.'

A research study by Martin in 1981 (cited in Brandt, 1981: 60-64) involved children in using a word processor — to create text, review their individual word lists, listen to and then read the stories they wrote. These children were in the early elementary grades, and it appears (Harris, 1983:15) that, when tested at the end of the year, they achieved scores at the 92nd percentile, whereas those children who had only used basal readers tested out at the 50th percentile. Martin comments:

> 'anything you can think and say, you can write. I'm teaching [children] to write because I've found that it is a better introductory process for learning to read. It has greater validity than a direct frontal assault on decoding.'

Adams and Jones (1983:69) concur with this, adding that the motivation of having a published story is a great incentive to write, and students have the opportunity to read their stories many times in the process of writing it: in the draft stage/s, in the editing and proofreading stage/s, and finally when they have been published.

For those L.D. students (and others) who are reluctant to write because they are poor spellers, there are many 'spelling checker' type programs. Sharples (cited by Estes, 1983:72) outlines such a program which is a spelling error classification used in remedial education. It not only recognises incorrect spelling, but also recognises homonyms used incorrectly, for example, 'there' and 'their' in 'Their is there house'. This program would search the sentence for meaning, discover that the first 'their' is incorrect in the context, display the word on the screen with its definition, then ask the student if a change should be made, and, if so, to make the necessary modification.

Smith and Gray (1983:186) used a word processor in their classrooms to assist the reading and writing of children who were experiencing difficulties in all aspects of language arts. Being non-programmers, they found the word processing facility of the computer most useful in devising reading and writing activities to meet specific needs of their children.

Watt (cited in Adams & Jones, 1983:70) demonstrates the motivation the computer had for a twelve year old girl with 'severe learning difficulties':

> 'For an entire hour, Tina painstakingly typed a two-line letter to her aunt. Although her expression was idiosyncratic and her spelling and punctuation were irregular, she worked slowly and thoughtfully. When her letter was printed out looking perfect and professional, Tina was thrilled. She insisted on making several copies, giving them to her teachers and friends as well as sending the 'original' to her aunt.'

References: Adams A. & Jones S. (1983) Teaching Humanities in the Microelectronic Age. Open University Press: Bristol. E. (1981) 'On Reading, Writing and Computers', in Educational Leadership, 39, 1. Estes T.H. (1983) 'A Commitment to Reading', in Reading Teacher, 36, 6. Harris D. (1983) 'Learning with PLATO', in Education Week, 17, 6. Smith J. & Gray S. (1983) 'Learning . . .', in Aust. J. of Reading, 6, 4.

How the W/P Can Help Revision

Following each revision on the computer, a story should be 'saved' on disk (or cassette) and also printed out as 'hard copy' (or 'printout'). Children find handling large amounts of text on the computer quite difficult, for they can see only one page at a time on the screen. But if they have hard copy at hand, they have some of the 'big picture' to what has gone before. During conferences, major changes in meaning and structure can be indicated on this hard copy. Although this may include extensive scribbling, crossing out and drawing of arrows, it will not worry the children because their 'saved' version awaits changing on the word processor — and the changes can be carried out easily and produce perfectly clean copy.' — Lexie Henderson-Lancett, Macquarie University.

Bald Face School (cont. from page 3)

The word processor is now in constant use for our Written Expression. First, the child types his story into the computer. Even whilst working on this first copy, the easy editing process gives him the freedom of changing his mind and revising sections of the story within moments if so desired. When the story is completed the printer is attached to the computer and a draft copy is printed. The story is also saved on tape so that it can be loaded back into the computer at a later date. On the draft copy the child makes any alterations or additions he wishes, after sharing his efforts with some of his friends. A conference with the teacher follows, resulting in more revisions.

When the writer is finally satisfied, and the computer is free, the tape containing the original version is reloaded into the computer and the editing process begins. It is a simple matter to alter incorrect spelling, delete unwanted words, add new words or even whole paragraphs. Clear editing instructions, printed onto cardboard, are fixed to the wall beside the computer to assist the child but after a few efforts these are no longer needed. Within a few minutes the final story is ready. Once again the printer is brought into action. Several copies are now printed, one for the child's own writing book and one for the class book.

The children have become experts in writing their stories on the computer, saving their files, reloading these files, and using the printer. This confidence has not developed overnight but skills have been introduced one at a time so that the children do not become confused in the process.

And how do the children feel about using the computer for Written Expression? The word most commonly used is 'fun'. The only complaint is that they cannot spend more time at the keyboard. (They are allowed anything up to two hours, if needed, for their draft copy.) Thoughts seem to flow so freely whilst using the computer that several children are now engaged in novels, being written a chapter at a time.

It is eighteen months since we introduced computers into our classrooms at Bald Face. During this time the staff has constantly evaluated and updated our computer policies. Interested parents have attended computer nights so that they do not feel threatened by this new innovation in teaching. (It's amazing how many of them have expressed this fear.)

Incredible progress has also been made in the area of Remedial Reading using reading comprehension programs prepared by our Principal, who takes a group for half an hour each morning. The addition of a computer to our classrooms has not made any less work for our teachers, in fact, it has probably increased our workload, but, having seen the results which can be obtained, not one of us would go back to the pre-computer days.

Sherlock, our original, has recently been joined by Harold, so that now there are TWO computers in our classroom . . .

Solving problems served up by computer programs can of course be valuable, but no educational role of the computer excels that of word processing when the child is composing original writing.

A Comment from the High School

Does the word processor help children to write?

Definitely, yes. My experience with lower ability junior secondary students has shown me that it does.

Here are a few observations that may help:

1. Teach the children to write onto the computer as if it is a book. Let them write first, then edit, then polish, and then publish.

2. The commands of the W/P program should remain a tool for editing. As teachers of writing we are not trying to teach the whole W/P package.

3. Children can cope with gaps of up to six days between using the W/P if need be, and still pick up the thread of their stories.

4. They can write directly through the keyboard. They do not need first to handwrite their stories. That restricts their thinking. Instead, let them fly high and then help them by discussing or 'conferencing'. (At this stage they can be taught the mechanics of the program.)

Finally, the secondary school gains immeasurably if children come to us from primary not only in a state of 'computer literacy' but able to compose confidently on the word processor.

Helen Drewe, Lithgow High School

'The Most Popular Application. . .'

Here is a comment on the word processor from Toni Downes, President of the N.S.W. Computer Education Group, and Computer Adviser, C.E.O., Sydney.

Of all possible applications for computers in Primary schools, Word Processing has become the most popular. This does not surprise me — primary teachers are committed to helping their pupils learn how to write, and most teachers intuitively recognise the potential of the W/P as a tool for writing.

A reluctant writer myself, I have great empathy with reluctant student writers. I have now been using a word processor for six years in my personal and professional writing. It has not 'solved' my problem but has certainly lessened my reluctance to write and do at least 'a bit of editing'. I have been helped by the readiness of others to encourage me not just with the surface quality of the writing but with the important personal message.

We have very little idea about how W/Ps will help children become better writers, or which children will benefit most. Yet teachers who are using them are very confident that they have found a tool that children enjoy and find useful when writing.

I think most teachers who are using W/Ps, are doing so at the later stages of the writing process, i.e. children are typing in an already handwritten draft that has been through a conference or two. This draft then receives a final edit on the screen and the 'perfect copy' is delivered via the 'printer', reader for publication. By thus emphasising the value of a computer in producing 'perfect looking' copy (neatly typed, with the surface errors corrected) there is a danger that the ideas — the child's creative contribution — might be devalued. We have yet to really explore the potential of W/Ps to help children move back and forwards through all stages in the process of writing.

A Summary of Claims for the W/P

Enthusiasts for the W/P say that it facilitates every stage of the writing process:

GENERAL. The W/P is 'friendly', confidence-building.
- After a few weeks of learning to manipulate it, it is easy to set up, easy to use.
- More enticing than the ('scarey') blank page.
- Overcomes inhibitions about one's poor handwriting.

PRE-WRITING. It stores notes, awaiting recall.
- Good for brainstorming, then planning.
- Invites bursts of preliminary 'free writing'.
- And of writing fragments before the first draft.

DRAFTING. Great for initial 'splurging'.
- Encourages generation/production of text.
- Fears of later, tedious editing are absent.
- Encourages speed of writing.
- To see clear copy on the screen helps writing.

REVISION. It is simple and 'clean'.
- You revise more, because it's so clean.
- To be able to move whole sentences is great.
- A 'sense of audience' comes more easily.
- Final, smart 'formatting' of text is possible.

PUBLICATION. Big advantage is that when revision is finished, a 'printout' is instantaneous.
- Any number of copies can be printed.
- Further revision is easy, and a further printout.

A few years down the track truly portable computers and printers will be in abundant supply in classrooms, computer paper will be as disposable as scrap paper, and typing will be a skill possessed by all children.

Under these conditions the emphasis will hopefully be on using the computer in the initial composing — brainstorming, planning, drafting. Children will be able to discard, at little physical cost, three or four drafts (or printouts) before they consider 'fossilising their ideas' through publishing. When children regularly use a sequence of drafts/printouts as records of stages of their composing, then we might make even greater inroads into their resistance to editing and re-editing.

'Word processing is a catch-all term for the work these new tools can do. In fact, this work is 'computing' — but with letters and punctuation marks instead of numbers. The tools are a keyboard with a few more keys than a typewriter, a screen that displays the words as you write or revise them, a printer that automatically types your work when you give the signal, a set of disks or cassettes to store the work, and a quiet box of electronics that runs the whole show.' — Andrew Flugelman & Jeremy Joan Hewes, *Writing in the Computer Age* (Century Publishing, 1983.)

About This P.E.T.A. Publication. *Copies of 'Writing Teaching and the Word Processor' can be obtained from PETA, P.O. Box 167, Roselle NSW 2039 (Phone 818 2391): Single copy $1.00; 10 copies $6.00; 50 copies $20.00.*

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